

## Supplementary material file SE: Details of the CFD simulation stage of the solar dryer prototype

### Solar drying of sludge from a steel wire drawing industry

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Figure S4, describe the CFD simulation geometric arrangements and dimension description carried out.

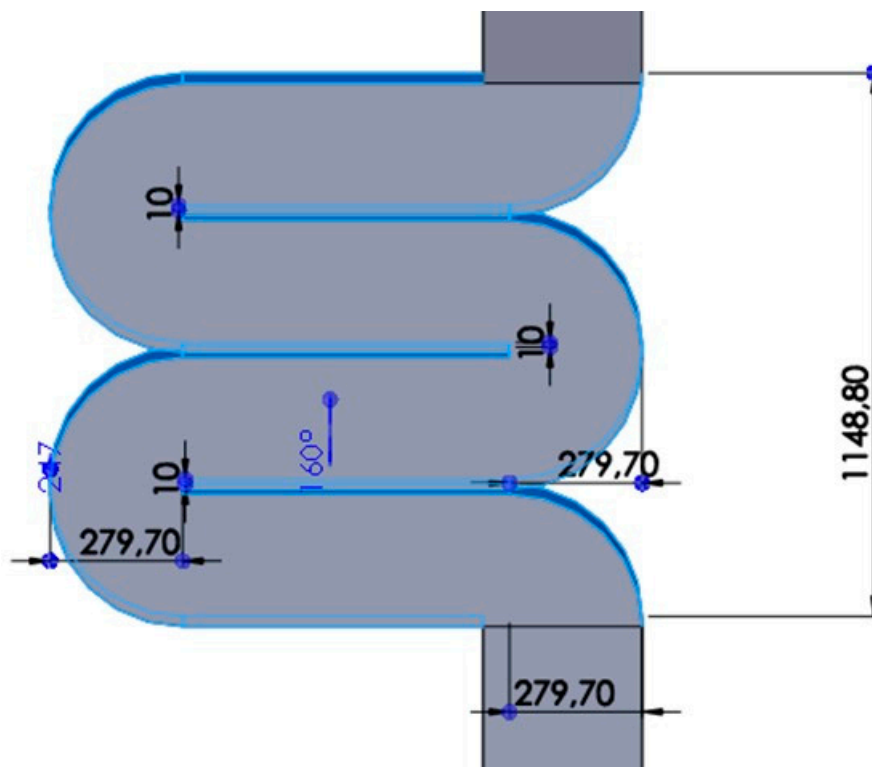


Figure S4. CFD simulation operation description

## Mesh

Overall Mesh Size: 25mm

Wall mesh: 7.5 mm divided into 7 layers with a growth rate of 1.2.

Total elements for mesh without baffles: 588,254

Total elements for the mesh with 90° deflectors: 596,742

Total elements for the mesh with 180° deflectors: 603,116

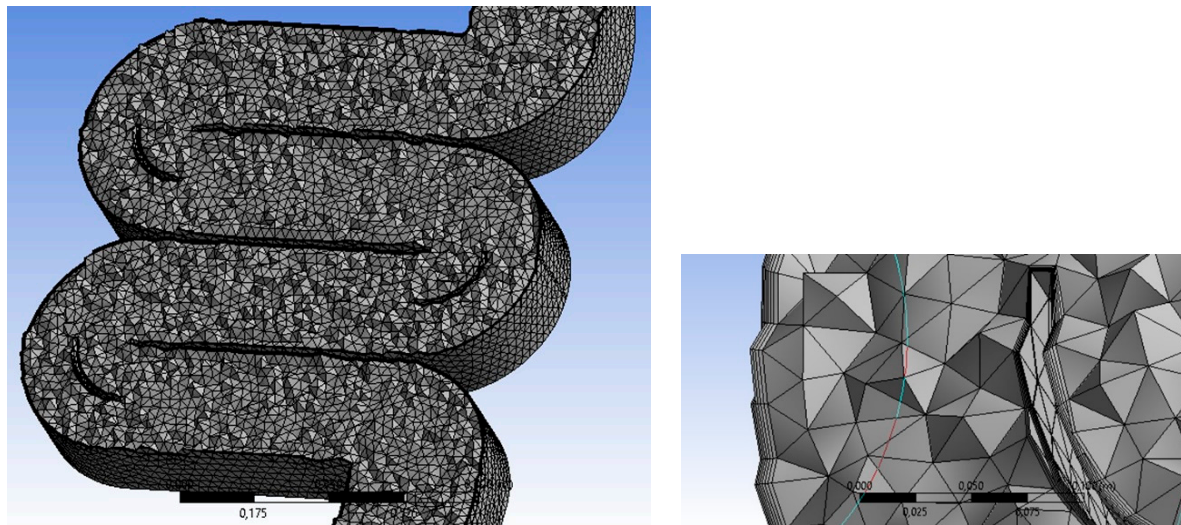


Figure S5. Mesh used in CFD simulation.

Table S7 shows the parameter description o the boundary conditions of the CFD simulation.

Table S7. Boundary conditions

Domain		Contour	
Material	Air ( $\rho = 1,2 \text{ kg/m}^3$ )	Inlet	0,0069 kg/s
Pressure ref.	1 atm		25 °C
Gravity	(0,0; -9,81; 0,0)	Outlet	0,0069 kg/s
Flow	Laminar	Bottom	Adiabatic wall
Radiation model	Discrete Transfer		Emissivity: 0,95
	18 rays		Diffusion: 0,05
	Gray	Lateral	Adiabatic wall
	Isotropic scattering		Emissivity: 0,7
Numerical criteria			Diffusion: 0,3
Convergence	$10^{-4}$	Glass	1) wall 66,2 °C
Iterations	600		2) wall 713,1 W/m <sup>2</sup>
			Emissivity: 1,0
			Diffusion: 1,0
		Other walls	Adiabatic 100%